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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/901,922	07/09/2001	Worthington B. Houghton JR.	155603-0195	7104

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EXAMINER

WILLIAMS, THOMAS J

ART UNIT PAPER NUMBER

3683

DATE MAILED: 01/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/901,922

Applicant(s)

HOUGHTON ET AL.

Examiner

Thomas J. Williams

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 and 29-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-26 and 29-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Acknowledgment is made in the receipt of the amendment filed November 1, 2004.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-6, 8-12, 14-18, 20-23, 25, 26 and 29-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,071,108 to Houghton, Jr. in view of DE 1,605,178.

Re-claims 1 and 29, Houghton, Jr. teaches a vibration isolator, comprising: a housing 23 with an outer alignment means 32; a support plate 28 moves in an axial direction relative to the housing, the support plate 28 is provided with a means for seating the support plate (interpreted as 31, column 3 lines 23-30) with the outer alignment means of the housing so that the support plate will be seated in the housing during deflation of an inner chamber 16; a vibration isolator or pendulum 21 is coupled to the support plate. The alignment means is used to center the

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piston/pendulum isolation system prior to each use. However, Houghton, Jr. fails to teach the alignment means, specifically the outer seat and the shoulder, as having a non-circular shape for preventing rotation when the inner chamber is deflated.

DE 1,605,178 teaches a centering device having a square shape, or non-circular shape, thus preventing unwanted rotation between elements 1 and 6. It would have been obvious to one of ordinary skill in the art to have designed the outer seat and shoulder structures of Houghton, Jr. as non-circular as taught by DE 1,605,178, thus preventing the cable elements 22 from becoming entangled or experiencing tension during the deflated state by eliminating unwanted rotation.

Re-claim 2, the outer seat of Houghton, Jr. is tapered.

Re-claim 3, the pendulum assembly 21 includes a cable 22 coupled to a piston 15 and the support plate 28, the piston 15 is coupled to the housing via the cable for instance.

Re-claim 4, the housing 23 has an inner seat and the piston is provided with an outer top surface. Houghton, Jr. teaches that the centering structure 38 of figure 2 can be incorporated into the embodiment of figure 1, column 4 lines 21-25. However, Houghton, Jr. fail to teach the non-circular design of inner seat and outer top surface.

DE 1,605,178 teaches a centering device having a square shape, or non-circular shape, thus preventing unwanted rotation between elements 1 and 6. It would have been obvious to one of ordinary skill in the art to have designed the inner seat of the housing and the outer top surface of the piston of Houghton, Jr. as being non-circular as taught by DE 1,605,178, thus preventing the cable elements 22 from becoming entangled or experiencing tension during the centering function by eliminating unwanted rotation.

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Re-claim 5, the housing 23 includes an inner cylinder 10 which defines a first inner chamber 16 and is located within a second inner chamber defined by hollow leg 13, see column 2 lines 44-46, the piston 15 is located within the first inner chamber 16.

Re-claim 6, the inner cylinder 10 includes a damping element 17, compressed gas is a damping element.

Re-claims 8 and 30, Houghton, Jr. teaches a vibration isolator, comprising: a housing 23 having an inner seat 32; a support plate 28 moves in an axial direction relative to the housing 23; a piston 15 with an outer surface 26/31 that is seated for centering during deflation and inflation of an inner chamber; a vibration isolator, which includes a cable 22, is coupled to the piston and the support plate, the cable is coupled to the piston 15 and the support plate 28 via the pendulum assembly 21 in figure 1. Houghton, Jr. teaches that centering structure 38 of embodiment 2 (figure 2) can be used in embodiment 1 (figure 1). This structure will provide the housing with an inner and outer seat, the seats are seen as axially opposing surfaces of element 34. However, Houghton, Jr. fails to teach the inner seat and the outer surface of the piston as having a non-circular shape, thus preventing rotation of the support plate when seated.

DE 1,605,178 teaches a centering device having a square shape, or non-circular shape, thus preventing unwanted rotation between elements 1 and 6. It would have been obvious to one of ordinary skill in the art to have designed the inner seat and the piston outer surface of Houghton, Jr. as non-circular as taught by DE 1,605,178, thus preventing the cable elements 22 from becoming entangled or experiencing tension during the centering function, or seated state, by eliminating unwanted rotation.

Re-claim 9, the inner seat is tapered.

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Re-claim 10, the housing 23 has an outer seat and the support is provided with a shoulder 32. However, Houghton, Jr. fail to teach the non-circular design of outer seat and shoulder.

DE 1,605,178 teaches a centering device having a square shape, or non-circular shape, thus preventing unwanted rotation between elements 1 and 6. It would have been obvious to one of ordinary skill in the art to have designed the outer seat and shoulder element of Houghton, Jr. as being non-circular as taught by DE 1,605,178, thus preventing the cable elements 22 from becoming entangled or experiencing tension during the centering function, or deflated state, by eliminating unwanted rotation..

Re-claim 11, the housing 23 includes an inner cylinder 10 which defines a first inner chamber 16 and is located within a second inner chamber defined by hollow leg 13, see column 2 lines 44-46, the piston 15 is located within the first inner chamber 16.

Re-claim 12, the inner cylinder 10 includes a damping element 17, compressed gas is a damping element.

Re-claims 14 and 31, Houghton, Jr. discloses a vibration isolator, comprising: a housing 23 with an outer alignment means 32 and an inner chamber 16; a support plate 28 that moves in an axial direction relative to the housing 23, the support plate is provided with means for seating the support plate (interpreted as 31, column 3 lines 23-30) with the outer alignment means of the housing 32 when the inner chamber is deflated (see column 3 lines 53-64); a pendulum 21 is coupled to the support plate. However, Houghton, Jr. fails to teach the alignment means as having an anti-rotation feature.

DE 1,605,178 teaches a centering device having a square shape, acting as an anti-rotation feature and thus preventing unwanted rotation between elements. It would have been obvious to

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one of ordinary skill in the art to have provided the outer alignment means of Houghton, Jr. with an anti-rotation feature as taught by DE 1,605,178, thus preventing the cable elements 22 from becoming entangled or experiencing tension during the deflated state by eliminating unwanted rotation.

Re-claim 15, the pendulum assembly 21 includes a cable 22 coupled to a piston 15 and the support plate 28, the piston is coupled to the housing 23 via the cable.

Re-claim 16, the housing 23 is provided with an inner alignment means, the piston has means for aligning with the housing. Houghton, Jr. discloses that alignment means 38 of figure 2 can be incorporated into the embodiment of figure 1.

Re-claim 17, the housing 23 includes an inner cylinder 10 which defines a first inner chamber 16 and is located within a second inner chamber defined by hollow leg 13, see column 2 lines 44-46, the piston 15 is located within the first inner chamber 16.

Re-claim 18, the inner cylinder 10 includes a damping element 17, compressed gas is a damping element.

Re-claims 20 and 32, Houghton, Jr. discloses in figure 1 a vibration isolator, comprising: a housing 23 with an inner alignment means 34 and an inner chamber 16; a support plate 28 moves in both an axial and rotational direction relative to the housing; a piston 15 moves in an axial direction (such as when being fully extended) and has alignment means for seating the piston with the inner alignment means of the housing 34 (interpreted as structure 38 and 44) when the inner chamber is inflated (see column 4 lines 21-38); a vibration isolator, which includes a cable 22, is coupled to the piston and support plate. Houghton, Jr. discloses that the embodiment of figure 1 can incorporate the piston alignment means 38 of the embodiment in

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figure 2, column 4-lines 21-25. However, Houghton, Jr. fails to teach an anti-rotation feature when the inner chamber is inflated.

DE 1,605,178 teaches a centering device having a square shape, acting as an anti-rotation feature and thus preventing unwanted rotation between elements. It would have been obvious to one of ordinary skill in the art to have provided the outer alignment means of Houghton, Jr. with an anti-rotation feature as taught by DE 1,605,178, thus preventing the cable elements 22 from becoming entangled or experiencing tension during the deflated state by eliminating unwanted rotation.

Re-claim 21, the housing 23 is provided with an outer alignment means 32, the support plate 28 has means for 31 aligning with the housing.

Re-claim 22, the housing 23 includes an inner cylinder 10 which defines a first inner chamber 16 and is located within a second inner chamber defined by hollow leg 13, see column 2 lines 44-46, the piston 15 is located within the first inner chamber 16.

Re-claim 23, the inner cylinder 10 includes a damping element 17, compressed gas is a damping element.

Re-claims 25 and 25, Houghton, Jr. teaches a method for aligning a support plate 35 of a pneumatic vibration isolator, comprising: releasing fluid from a housing 10 of a vibration isolator such that a support plate 35 is seated within a seat 34 of the housing, the support plate is coupled to a vibration isolator/pendulum assembly. However, Houghton, Jr. fails to teach the housing as having a non-circular seat, thus preventing unwanted rotation of the support plate when seated with the housing.

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DE 1,605,178 teaches a centering device having a non-circular shape, thus preventing unwanted rotation between elements 1 and 6. It would have been obvious to one of ordinary skill in the art to have designed the seat of the housing of Houghton, Jr. as non-circular as taught by DE 1,605,178, thus preventing the cable elements 22 from becoming entangled or experiencing tension during the deflated state by eliminating unwanted rotation.

Re-claim 26, a payload 12 is attached to the support plate 28.

5. Claims 7, 13, 19 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Houghton, Jr. in view of DE 1,605,178 as applied to claims 1, 3 and 8 above, and further in view of US 5,779,010 to Nelson.

Re-claims 7 and 13, Houghton, Jr. as modified by DE 1,605,178 fails to teach a hollow piston opening into the first inner chamber. Nelson teaches a vibration isolator having a hollow piston 26, thus defining an inner cavity. It would have been obvious to one of ordinary skill in the art to have provided the device of Houghton, Jr. with a hollow piston as taught by Nelson, thus reducing the overall weight of the vibration isolating device.

Response to Arguments

6. Applicant's arguments filed November 1, 2004 have been fully considered but they are not persuasive. As stated previously the only significant difference between the prior art of Houghton, Jr. ('108) and the instant invention is the recitation of a non-circular shoulder cooperating with a non-circular seat for preventing unwanted rotation. Preventing the rotation of the isolator during a centering operation is considered desirable, since this would reduce the potential damage to the support structure and housing and specifically the bellows 19, which would be damaged during excessive rotational movement of the support plate. Therefore it is the

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opinion of the examiner that one of ordinary skill in the art would have been motivated to provide a means, such as a structural design, to prevent rotation between the support plate and the housing during the centering function. One such structural design is the use of a non-circular seat cooperating with a non-circular shoulder, since it is well known that two similar non-circular shapes that interact with each other will also resist relative rotation with respect to each other. As such, DE 1,605,178 is relied upon as teaching a centering device that utilizes a rectangular plate 6 seated within a rectangular seat 1.

It is believed that one of ordinary skill in the art would have realized the benefits for reducing rotation of the vibration isolator relative to the housing during periods of alignment, especially during a deflated state. Relative rotation between the housing and vibration isolator would have resulted in damage to the bellows (or diaphragm 19), resulting in costly repair. By reducing this potential for rotation one can reduce the potential for extensive damage. Thus it is the opinion of the examiner that one of ordinary skill in the art would have been motivated to increase the lifespan of the isolator taught by Houghton, Jr. by simply preventing unwanted rotation during periods of alignment, such as by utilizing interlocking peripheral edge profiles as taught by the German reference (DE 1,605,178).

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiries concerning this communication or earlier communications from the examiner should be directed to Thomas Williams whose telephone number is (703) 305-1346. The examiner can normally be reached on Monday-Thursday from 6:30 AM to 4:00 PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Bucci, can be reached at (703) 308-3668. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

TJW

January 7, 2005

THOMAS WILLIAMS
PATENT EXAMINER

Thomas Williams
Au 3683
1-7-05